THE PLOUGH BOY.

AND JOURNAL OF THE BOARD OF AGRICULTURE.

BY SOLOMON SOUTHWICK.

"He that observeth the wind shall not sow; and he that regardeth the clouds shall not reap."—BUT—"He that tilleth his land shall have plenty of bread."—*Ecclesiastes.*

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On the Cultivation of Flax.

[Communicated for The Plough Boy, by a Correspondent in Philadelphia.]

Philadelphia, 27th Feb. 1821.

R. WISTAR, Jr. takes the liberty of forwarding the inclosed Report to Mr. SOUTHWICK, and hopes he will insert it in his valuable paper; if not entire, the Resolution of the Society, offering the Prefmium for the most approved Flax Machine.

REPORT OF THE CURATORS,

Of the Philadelphia Society for Promoting Agriculture, on the Cultivation of Flax.

The curators taking into consideration the present distressed state of agriculture, from the extreme depression of the prices of all the products of the soil, and believing that there is no immediate prospect of a favourable change—beg leave to draw the attention of the society to an object which, in their view, well deserves the most serious consideration and strenous exertions for its accomplishment. The experience of past years has fully established the fact, that so long as the nations of Europe remain in a state of peace, and adhere to the system of protecting the respective products of their soil from the competition of all extraneous supplies, they will continue independent of this country for all articles of subsistence; and the extent and fertility of our soil are such, that a comparatively small portion to what is now in cultivation will furnish abundant means for domestic consumption. The natural consequence must be, that if the soil cannot be appropriated to the cultivation of some other commodity than that of subsistence, a considera ble portion now in unprofitable culture, must be abandoned and suffered to grow up in waste. The aversion of this impending calamity to the agricultural prosperity of our state, can only be effected by the developement of some other resource of the soil; and every propos d improvement which has for its object the creation of a new source of wealth, claims at least a fair and full experiment.

While the products of agriculture have experienced a diminution of value so destructive to the welfare and prosperity of the middle and northern states, the sources from which the southern states derive their immense wealth remain partially unobstructed.

The cotton of the south, notwithstanding its wonderful augmentation, still finds its way to a profitable market; its consumption grows with its accelerated growth; invention has been racked, and the art and ingenuity of man have been successfully employed to apply its use, to the exclusion of almost every other article of manufacture.

The invention of the cotton gin, for separating the seed from the cotton, and the application of improved machinery to the manufacture of the raw material, have given to this article all its present value and importance; they are the great agents by which all the wonders of the cotton cultivation in the United States have been effected.

The capacity of our soil for the growth of flax cannot be questioned. The tedious and destructive process, and expensive labour, by which it has been hitherto produced in the raw material, have rendered its general cultivation wholly impracticable; and the want of machinery to manufacture it with the same facility as cotton, has deprived it of that share in the consumption of our country, which, with the removal of these difficulties, flax may justly claim. If, by modern improvements, the difficulties which have hitherto prevented the general cultivation of flax are removed; and if by the application of machinery, the raw material can be manufactured with greater facility than cotton, a new and profitable direction is offered to the drooping industry of our country in the growth of flax, and the establishment of a useful manufacture.

The society, on receiving information that flax machines had been invented in England, for preparing flax without having recourse to the former expensive and destructive operation of dew or water *rotting*, and by which the labour was greatly diminished, took immediate steps to procure them. Funds were transmitted to England, and letters directed to several gentlemen in London, requesting their assistance to forward the views of the society. Owing to some difficulties in the laws of Great-Britain against the exportation of new inventions, the society have not succeeded in obtaining them; but the president of the society, with his accustomed zeal, is persevering in efforts, which it is confidently expected will be successful.

The flax machine now exhibited to the society, was constructed by artists of this city, on the plan of Hill & Bundy's flax machine, and is confined to the operation of breaking the flax in its dry state, and is calculated, with the labour of two boys, to break forty pounds per day. The same artists propose to construct a rubber for preparing the flax for the hackles, provided the society will afford them suitable encouragement. Other forms have been invented and tried in England for the accomplishment of the same object, with various success; and if the ingenious effort of our own countrymen, so fruitful in invention, were attracted to this object, there is every reason to believe that still greater improvements would be effected.

The flax machines propose to effect for the culture of flax, what the cotton gin has accomplished for the cultivation of cotton. And with the accomplishment of this object, a statement of the relative expenses of the cotton and flax culture will furnish data, on which may be fairly estimated the value and importance of the cultivation of flax to our state. The product of clean cotton may be stated at an average of 250 pounds to the acre; that of flax varies from 200 to 600 pounds, and may be rated at an average of 300 pounds to the acre. We have taken our estimate of the average quantity per acre of our flax culture, from the produce of an acre according to the old mode of rotting and dressing: but it will be seen in the English publications, that the new mode of dressing by machines, increases the quantity so as to double it, and the strength of the fibre is perfect: so that, instead of getting a sixth part of the whole plant rotted, one-third is the general produce of the operation by the machines, which prepare the flax without the delay and risk of dew or water rotting. The expense and labour of pulling the flax are much less than picking the cotton, which requires the constant application of a force for a period of four months. Flax does not require a more expensive tillage than wheat, to insure a good crop, and when pulled green, and while the seed is soft in the capsule, is less exhausting to the soil,

and may be advantageously substituted for any other crop, in any proposed system of rotation. Flax, when broke in the dry state, yields a considerable quantity of offal or chaff, which, together with the seed in its imperfect state, form a most nutritious article of food for cattle. Flax has been hitherto cultivated in this country principally with a view to the profit of the seed, and hence the fibre has been coarse and harsh, but when pulled green, its quality is greatly improved. When the same attention shall be bestowed on the culture of flax, that has been devoted to the cultivation of grain, and the same care adopted in the selection of the best seed, a still farther improvement in the quality, and increase in the quantity of the product, may be confidently calculated on.

In addition to all the advantages which the invention of flax machines afford to the cultivation of flax, the curators have ascertained, that there is at present in operation, in the vicinity of Frankford, machinery for spinning flax with greater facility than can be accomplished by machinery in spinning cotton. Agreeably to the statement of the proprietor of this machinery, made to the curators at their request, and submitted to the society—"the expense of attending one frame of 24 spindles, and preparing the flax (except hackling) is thirty-three cents per day, and the average quantity of yarn is about 24 pounds per day, or one pound of yarn to the spindle per day, equal to the production of one spindle for cotton per week."

The extension of the flax culture by increasing the supply, will afford encouragement to the manufacture of it, and the manufacture will reciprocate, equal encouragement to its cultivation, by enlarging the demand. The great consumption of our country of articles of which flax is the material, has been made exclusively subservient to the productive labour and wealth of foreign countries; and deriving all the benefits of that consumption, they have studiously encouraged the growth of flax, and protected the manufacture of it by large bounties. How important is it then, that we should avail ourselves of improvements calculated to render us independent of all foreign supply of this important article in the consumption of our country, and to give to our own industry all the advantages to be derived from the cultivation and manufacture of flax. If these advantages have not been overrated, it is a subject of great national importance; and if the legislature of our state were properly impressed with its bearing on the general interests of agriculture, they might be induced to afford encouragement adequate to the accomplishment of the object.

The curators offer these suggestions to the society with a view to draw their attention to the importance of the flax cultivation to the interests of agriculture, and induce them to adopt all the means within their power to give the flax machines a full and fair experiment, and to afford to them the benefits of any improvements of which they may be susceptible. Our country is indebted to native invention for the cotton gin, which has given so much value to the cultivation of cotton: and if the inventive faculties of our countrymen could be directed to the improvement of the flax machines, by offering suitable encouragement, there is every reason to calculate on final success. The wonderful improvements of modern times in all labour saving machinery, and the eminent instances of success in invention, would justify the opinion, that discovery on any given subject, may be confidently sought. And on this account, the offer of a premium, or even simply a topic for investigation, is often of national benefit. The funds of the society can never be appropriated to a more useful purpose, than offering premiums for useful inventions adapted to prescribed ends. And what end can be proposed of greater magnitude to the interests of agriculture, than that which, if accomplished, is calculated to furnish a new resource from the soil, to give value to industry, and afford assurance to the farmer, that he shall no longer be compelled to toil in vain, and waste his vigour and strength in unprofitable labour. The curators respectfully recommend to the society to offer a premium to the person who shall make and exhibit to the society, on or before the first day of January next, the most perfect machines for preparing flax in the raw material, without having recourse to the former process of dew or water *retting*, and by which the labour and expense of preparing it will be essentially diminished. Published by order of the society,

STEPHEN DUNCAN.
JAMES M. BROOM,
ISAAC C. JONES,
REUBEN HAINES,
JOSEPH R. PAXSON,
Curators.

At a stated meeting of the "*Philadelphia Society for promoting Agriculture*," held on the 20th of February, 1821,

It was resolved, that a PREMIUM OF TWO HUNDRED DOLLARS be offered to the person, who shall exhibit to the society, the most perfect machines for dressing and preparing flax, without DEW or WATTER RETTING, on or before the first of January next.

The society reserves the right of distributing the premium in whole, or in part, according as it shall deem the machines to have merit; and also to give any proportion thereof to the person who shall exhibit any one of the machines competent to perform the operation required.

The machines to be approved of by the society, before awarding the premium, which may be entirely withheld, if the society shall deem such machines not to have sufficent merit.

RICHARD WISTAR, jun.
Assistant Secretary.

FRANKFORD, 2d mo. 16th, 1821.

Respected Friend—I have received thy note of 14th instant, on behalf of the Philadelphia Society for promoting Agriculture. I applaud their endeavours to promote the cultivation of flax, and hope the manufacturing of it may also claim their attention. I shall willingly communicate what information, I can on the subject. I have only had one spinning frame (or thrassel) in operation, which has produced a profit equal to my expectations; the quality of the yarn may be ascertained by examining the enclosed sample; finer yarns may be spun of flax of finer quality, suitable for sewing thread, &c. The expense of attending one frame of 24 spindles, and preparing the flax (except hatchelling,) is 33 cents per day; the average quantity of yarn is about 24 pounds, or one pound per spindle per day, equal to the production of one spindle for cotton per week. The machinery is constructed on the most improved English plan, and I am doubtful of the practicability of making any material improvement in the construction. I am, respectfully, thy friend,

JOSIAH CHAPMAN.

STEPHEN DUNCAN, Esq.

P. S. This kind of flax machinery, was first erected in the United States in the year 1808, by George Brown, has been in operation since that time, in manufacturing twine, shoe yarn, sewing thread, sail duck, bedtick, sheeting, webbing, and from the tow bagging ditto for baling, cotton carpet warp, and filling wrapping yarn and candlewick, &c.

The number of spindles in the state of New-York is 162; in New-Jersey about 600; a part of which were erected by a Frenchman, and are differently constructed: all those in New-Jersey are manufacturing sail duck for the United States navy on my plan. In Pennsylvania there are only 96 spindles, the whole of which will be in operation in the course of next month.

Address,

Delivered before the Montgomery County Agricultural Society, October 18, 1820.

BY DR. STEPHEN REYNOLDS.

Farmers of Montgomery,

The time has arrived, when your profession begins to assume its proper station. Agriculture is found to be the basis, upon which the permanent prosperity of the state must be erected.—Convinced of this truth, all classess appear to be desirous that this basis should be laid, broad and lasting as the stars For then we may reasonably expect that the superstructure will not only be ornamental, but as extensively useful as the wants of mankind.

In an age like the present, when the utility of Agriculture is so fully recognized, it would be quite unnecessary to insist upon the advantages which every nation must enjoy, where this art is sufficiently understood and skilfully practised.—And to no nation under heaven, does agriculture offer greater rewards, that to ours. Our climate is temperate, our soil luxuriant, and our seasons uniformly benign. Here no flood, or sweeping hurricane, desolates the land. Here no sirocco blows, or clouds of locusts waft famine on their wings. Here no rapacious priesthood, demands the firstlings of our flocks, or the tithes of our fields; but here all the natural evils, with which we are surrounded, are truly "*blessings in disguise.*" Not one but may be averted or overcome, by the skill and industry of the husbandman.

Our depths of snow facilitate transportation, and insure a bountiful harvest. Our flocks are rendered tame and submissive by the winter; and milk, that choice nectar of our cows, is enriched by the cold, and made to overflow the pail.—Here the equality of our rights, awakens a laudable spirit of emulation; and while we cultivate our own soil, we may rejoice in the belief, that it will descend to our children with every im-

provement that we can annex. And although in accomplishing this object, we may have frequent occasion to wipe the sweat from our brows, we may rest assured, that the abundant enjoyment of all the substantial comforts of a country life, are its never failing reward.

Agriculture claims preeminence above manufactures or commerce, from its seniority and usefulness—and to use an expression of the celebrated Sully, may be regarded as the breast from which the state derives its support and nourishment. Our government itself, feels this truth; and the legislature of last year, to its lasting honor, was the first to redeem the farming interest, from the unjust humiliation into which it had fallen, by patronizing it in a judicious and munificent manner; for it is a fact, (much indeed to be lamented) that Agriculture, from a concurrence of circumstances, has been hitherto somewhat despised, and held by many in low estimation. A spirit of wild speculation has overspread our land, and drew into its vortex our most enterprizing citizens. Our best young men have been taught, that there was an easier and shorter road to wealth and reputation, than to cultivate and subdue their native soil. The time which they should have spent in learning the practical knowledge of husbandry, has in too many instances, been worse than thrown away, in our schools and colleges. Those literary gaols, in which we have immured so many of our sons, have but too often proved fatal seminaries of idleness and vice.

That strength of body and mind, which alone confers worth and respectability, has been by our misguided fondness, bartered away for effeminacy and folly. And after having spent more money, than would have purchased and improved a farm, they are sent back to us, enervated and quite unfit for any useful employment. Our towns and villages are full of these incumbents, who like drones, are living upon the honey collected by the better educated and more industrious part of the family—or like wasps, are feeding upon the wealth of others. We have pushed our sons into the learned professions until the division and subdivision of business among them, has brought want and misery to their doors. Physicians are to be found in almost every neighbourhood, whose professional services are not wanted; and lawyers are multiplied among us, until like the frogs in Egypt, they have in many instances, come up to our houses and our kneading troughs.

Gentlemen, these are certainly evils of no inferior magnitude; but I trust they are not beyond our power to remedy, although they may be attended with much individual mortification and disappointment. We must not conclude, because our merchants offer us the flimsy fabricks of Europe and India for a small price, that we may neglect the cultivation of flax, or give up our fine merinos to the butcher. We must not conclude, because we can exchange the produce of our land for ardent spirits, that we may use it in our harvest fields!—No. This life-destroying, demoralizing practice, must be abandoned.—We must without delay, return to the frugal and sober habits of our fathers, and early instruct every branch of our families, in some useful and productive employment. This once accomplished, our numerous embarrassments will disappear, and we shall be truly more fortunate, than if we had discovered the Philosopher's stone.—If we cannot convert the surplus of our farms into heaps of gold, we can do that which is better—we can live comfortable, happy and respectable without it.

Gentlemen, the long disturbed state of the world, which began before many of us were born, had induced us to believe that it was to last forever. Upon this mistaken and ill-founded opinion, we have preconcerted all our plans and operations; we have truly, as the Board of Agriculture observe, for a long series of years, been the willing dupes of a splendid and feverish dream. We have imagined that the accumulation of riches, the enormous increased value of our real estates, the high price of produce, and the unexampled plentifulness of money, were in fact the natural fruits of the intrinsic resources of the country, and would continue to increase, *ad infinitum*. It was this fallacious opinion, which has brought upon us so many extravagant habits, and has augmented in a ten-fold ratio, our numerous wants. It was this visionary policy, which caused us almost entirely to overlook Agriculture—that vocation which belongs naturally to man, and which is so remarkably imposed upon the people of this country by their situation. But this extravagance has reached its limits, and to our misfortune, has left us almost exhausted in the effort. "Neglected and despised, Agriculture is now called upon to restore the country to its pristine vigour; to give bread and clothing to the poor, labour to those who seek it, and innocent and profitable occupation to those who are desirous of it." All this, and more, by the blesing of God, can be done by Agriculture—

> "For in the woods, she raises palaces,
> "Puissant states, and crowded realms—"

Gentlemen, a free and intelligent people will not long remain in error. Instructed in the school of adversity, and made wise by experience, we shall surmount our multiplied embarrassments, and soon learn to look calmly at what is past.—For although a severe, I trust it will prove a salutary lesson. But among the numerous causes which conspire to prolong and increase our difficulties, there is none, perhaps, has done more injury, than the almost universal belief, that money would soon be more plenty, and that our produce would by and by command a higher price. This mistaken opinion is much to be lamented, as it has continued our ruinous habits, and deleyed those salutary and necessary amendments, which the change of times and circumstances require. From this cause, many Farmers of this county have their granaries filled with the products of last year, while their contracts remain unpaid, and while they are losing not only the unavoidable wastage, but the interest which this capital might have produced. Our crops of last year were abundant, and had they been carried as usual to market, we should have heard less complaint from their owners, and the community would have derived material benefit from this additional money, and the additional buisness which this would have occasioned.

If we attentively survey the present condition of all that part of the world, with whom our country has any commercial relation, we shall see no reason to expect that our *markets in this respect will ever be any better.* The conflicting nations of Europe, have become tired of their destructive wars, disbanded their numerous armies, and with one accord, converted their soldiers into Farmers, and their "*swords into ploughshares.*" And surely as men or as christians, we cannot wish them to change this state of things, so desirable for the repose and happiness of the world. But this practice of hoarding up our grain far a higher price, is not only unwise and impolitic in the present situation of our affairs, but is at all times sinful, and will never fail to be punished by that God, who maketh his sun to rise, and giveth his rain in due season. For the God of our harvest has expressly declared, that "*he who withholdeth corn the people shall curse, but blessings shall be upon the head of him who selleth it.*" This Divine injunction, this promise of our benevolent Creator, apart from all other circumstances of profit or loss, is a consideration that deserves the attention of all serious men. In a word, my friends, we must practice the salutary lessons of economy, or be enslaved to our creditors, at home and abroad. We must, as our friend Watson very justly observes, buy less, make more, and hold credit as the bane and curse of this community. Every freeman may then rest in peace under his own vine, and walk erect with a firm and manly step, truly the lords of the creation.

Ladies of Montgomery,

Before I close, permit me to remark, that I have viewed with particular satisfaction, your numerous attendance upon the business of this day—and have been much pleased with the variety of your exhibitions, which show conclusively, the industry and skill of your hands. If our farms are not managed with as much art as in some other countries, I have no hesitation to say, that our domestic manufactures are as flourishing. We have honourable evidence before us, that "*you have sought out wool and flax, and worked willingly with your hands.*" And I may apply the words of King Lemuel with the utmost sincerity, "*many daughters have done virtuously, but thou excelleth them all.*"

Yet in this crisis of our affairs, we want not only the labor of your hands, but we stand in need of your counsel and your encouragement. And as *Fashion*, that powerful goddess, is almost exclusively under your control, we entreat you to direct her smiles upon Agriculture and Domestic Manufactures. We entreat you to show to the world, that the American Fair, are always "*most adorned, when unadorned*" with foreign finery; and that the daughters of Montgomery despise jewelry of all kinds, as no ornament to rural charms. For it is well known, that the pastoral rose is tarnished, when hung round with rubies or with diamonds. But most of all we entreat you, to instruct your sons and to teach your daughters, that there is no situation in life, more respectable, none more desirable, than that of a skilful Farmer. Then shall the talents and genius of our country, flow in there proper channel; then shall Agriculture, which gives food and clothing to all mankind, assume its proper station at the head of the useful Arts—and then shall republican morals in their purity prevail—and in the general prosperity, we shall all rejoice.—For then shall Plenty, with her copious horn, sit easy, smiling, and over every house preside.

A New System of Cultivation,

Without Lime, or Dung, or Summer Fallows: as practiced at Knowle Farm, in the County of Sussex. By Major-General Alexander Beatson, late Governor of the Island of St. Helena, and Honorary Member of the Board of Agriculture.

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"Petty operations, incessantly continued, in time surmount the greatest difficulties, and mountains are levelled, and oceans bounded, by the slender force of human beings."—*Doctor Johnson.*

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III. ON PREPARING THE LAND FOR THE SEED.

An easy and expeditious method of obtaining more perfect pulverization, than by ploughs and harrows.—Observations on deep and frequent ploughings.— More exertion of animal power required in ploughing at once deep, than by repeating the operation twice, to obtain the same depth.—New implements adopted.—The requisite power to prepare land greatly diminished —Concise description of the implements. —The daily effect of each implement—and the daily expense of each operation.—The whole illustrated by practica examples.

Having detailed the methods by which I have been relieved from two very expensive charges incident to the old husbandry, (liming and fallowing,) I shall now proceed to explain the alterations I have introduced for preparing the land,—by which I can easily and expeditiously obtain a more minute division of the particles of the soil than can be produced by the plough and harrow. Instead of waiting from harvest until the following seed time, and wasting, as my neighbours do, the labour of my teams in ploughing, and re-ploughing unproductive land, I prepare for the winter sowing, and have the fields appropriated to wheat, and winter tares, all in readiness for the seed, in the course of a few weeks after the preceding crops have been removed. This I am enabled to do by using the plough very sparingly, and sometimes not at all.

All writers on husbandry, from the days of Columella* to the present time, have strongly urged, and some have practically proved, the great advantages of a perfect pulverization of the soil. The general principle which they inculcate is, "*to keep the lands clean, and in fine tilth, and to make a farm resemble a garden as near as possible.*"

Although every man of the least reflection must be sensible that this garden-like culture is much better than that of the field; yet we find many advocates for a rough cloddy surface, who practise in the field that which they never dream of in their gardens. If those persons were to try an experiment of the two modes in a garden, or in a field, they would soon see the vast superiority of a fine pulverization. For my own part, I have, in so many instances, experienced this superiority, that I am rather in doubt whether a considerable share of the effect of the calcined materials has not been produced by the extreme fineness to which the soil is reduced *by implements of small power*—and therefore I have spared no pains to discover by what means I could obtain this minute division of the particles, at the least possible expense.

In my endeavours for the attainment of this object, I soon perceived, that, by the usual mode of *deep and frequent ploughings*, there was scarcely a possibility of reducing strong clayey lands, such as mine, to that degree of fineness required for the drill. A respectable and intelligent landholder in this neighbourhood, when I mentioned to him my intention of practising the drill-husbandry, told me "it would not do—he had given it a trial—and gave it up, because he could never get his land fine enough."

After considering what might be the cause of this failure, I inferred that those deep and frequent ploughings were injudicious: too much was attempted at one operation; that the first ploughing not only buried the seeds of weeds beyond recovery, which had fallen on the upper surface, but brought up immense slags—which being cut transversely by the second ploughing, left the field covered with huge clods, in which were securely locked up some of those seeds which had no chance of vegetating until the close of the fallow; consequently their progeny, which it was intended by the fallow to destroy, would have equally the benefit of all these laborious and expensive operations of the fallow, and of the manure, as the wheat itself—and would grow with it, and rob it of a part of that nourishment, which it would have had, if those robbers of the soil had been destroyed before they came into existence; or as soon as they showed themselves. The best mode of bringing them forward for the purposes of destruction, is to loosen them from their prisons, and to destroy them by fire in their embryo state; and to give those which may have escaped, some chance of vegetating by a fine tilth, before the crops are put in the ground.

But to obtain this requisite fineness of tilth in an easy and expeditious manner, appeared, at first, a matter of some difficulty. I had at this time a field of five acres, which had remained in fallow five months. It had received only one ploughing, and had no manure after the four preceding crops. Early in March I was about to prepare it for oats. I was advised to plough it; but as the slags were at that time as hard as a brick, it was very evident that the whole surface would be immediately converted from smooth slags into large clods—which it would be almost impracticable to reduce by any means—unless they were a little softened by rain: moreover, I conceived, that by ploughing at this time, a raw unmellowed soil would be brought up, and the surface, which had so long been exposed to the beneficial influences of the atmosphere, would be buried; so that the advantage it had gained by that long exposure, would be almost entirely lost.

For these reasons I resolved to pulverize the slags by other means. It was a work of great labour; for I had at that time no other suitable inplement than the brake, or heavy harrow.—At length, however, I succeeded, after five days labour, of eight oxen and one horse to the brake, and two horses to a pair of harrows, in reducing this stubborn field almost to dust. The expense of man and cattle labour was 31 shillings per acre.

The oats were sown broad-cast, and yieded as fine a crop as was then to be seen in this neighbourhood, to the surprise of some of the farmers, who predicted, that as the land had not been manured, it would not yield even the quantity of seed sown.

So manifest a proof of the beneficial effect of a fine pulverization, determined me to try if some means could not be devised for obtaining it at a less expense.

In preparing this oat-field, I had at first used the brake merely py dragging it in the usual manner. Afterwards it was equipped with two stilts, or handles, which gave it greater power: but I observed when the hindermost tines were inserted in the soil by the pressure on the handles (by the man who held and directed the brake,) many of the foremost were thrown out, and consequently had no effect.

It was then I first perceived the imperfection of this implement; and that however effectual it may be on light soils, it is not adapted to the heavier sorts. This imperfection arises from there being too many tines, or points of resistance, interfering one with another. In general, the number is thirty-six—which are in fact so many resting points—bearing the whole weight of the implement.

Now, if we suppose this whole weight to be 720 pounds, the weight on each tine will be no more than 20 pounds, which can produce but little effect on any hard surface. To increase this weight (or power) on the tines, it was only necessary to reduce their number. It is upon this principle I have constructed my small scarifiers. They have no more than seven tines, inserted nine inches apart, upon two parallel lines, at the distance of 15 inches, by which the power is not only more concentrated, but very grently augmented; for, if we suppose the same weight, of 720 pounds, acting or pressing upon those seven tines, it is evident that, instead of 20 pounds, the force, or pressure, on each tine will be 102 6-7 pounds, or one seventh of 720.

As one of these improved scarifiers, with a single horse, appears to me to produce, at one operation, as much effect as four or five Indian ploughs, or the same number of Chinese ploughs, I have been induced to inquire a little into the construction and application of these slender implements, and to examine, as far as I have at present the means, the *surprising* performances of the Chinese plough.

Of this implement there is a very good representation in the Farmer's Magazine for 1805, described in a letter to lord Somerville. The anonymous writer states, "it is so light, that a man can easily carry it on his shoulder. The ploughman manages it with great ease with one hand. On light soils, one bullock, the size of a small Highland cow, is used. On the clay soils, which, about Canton, are like our carses (and which they always plough wet,) they use a buffalo, being stronger. I assure you," says this writer, "that a Chinese ploughman would laugh as heartily at Small's plough with two horses, as a

* Columella advises that the soil should be reduced to dust by ploughing; and he quotes a saying of the ancient Romans, that *land is ill ploughed which wants harrowing after the seed is sown.* With implements of less power than those in use at the present time, this extreme fineness is attainable without harrowing: but whilst the practice of tearing up large clods continues, not only harrowing, but frequent rollings will be required, to reduce the soil to that degree of fineness which is recommended. By that practice, (which is unknown among eastern nations, and must have been unknown in England, when only one or two oxen were used in a plough,) a foundation is laid for an immensity of future labour, which might be avoided, if less powerful implements were used; and if we were to imitate the Chinese and Indians, by *ploughing and pulverising at the same time*, which their slender implements compel them to do, and which may be more effectually performed by scarifiers These, in fact, (as will be shown,) perform at once the double office of plough and harrow, and, I may add, of the roller—because when land is prepared simply by the scarifiers, no rolling is wanted.

Lothian farmer would at the clumsy machine with six horses, used in this neighbourhood."*

The Indian plough is, I think, of lighter construction than the Chinese. I have seen an Indian returning from his day labour, seated on a small bullock, gaily trotting home with his two ploughs, one in each hand, resting upon his thighs. The sight was so remarkably striking, that I did not omit at the moment to give it an entry in my journal.

But, as Dr. Johnson observes, "*All the performances of human art, at which we look with praise or wonder, are instances of the resistless force of perseverance.*" It is not by a single operation, that the Chinese and Indian ploughs perform those wonders which have attracted the notice of travellers—this would be utterly impossible; for neither the strength of the implement, nor the power of the two miserable animals that drag it, would admit of so much exertion, as would be necessary at once to penetrate the soil to the requisite depth, unless in a rice field, which is, by water, converted to a perfect puddle. The whole secret consists in *petty operations incessantly continued*; which, "*in time, surmount the greatest difficulties.*"† When I was at St. Helena, I sent for Chinese and Indian ploughs, intending to introduce them on that island; but when they arrived, I looked upon them, as most people of this country would, with not very favourable impressions. I therefore gave a preference to the Norfolk plough, because, at that time, I was not aware of the necessity of repeating those petty operations.

Dr. Buchanan, in the account of his journey from Madras through *Mysore, Canara, and Malabar*, gives the following notices respecting the repetition of ploughings, and the *imperfection* of the ploughs used in those countries. "On considering the state of agriculture near Seringapatam, many capital defects will be perceived.—Owing to the extreme imperfection of implements, and want of strength in their cattle, a field, after *six or eight* ploughings, has numerous small *bushes* remaining as upright in it as before the labour commenced—while the plough has not penetrated above three inches deep, and has turned over no part of the soil.—The plough has neither coulter nor mould-board, to divide and turn over the soil; and the handle gives the ploughman very little power to command its direction. The other implements are equally imperfect, and are more rudely formed than it was impossible for my draughtsman to represent." Vol. I. page 127.

"For the *Carteeka* crop (of rice) five ploughings are given: after the fifth ploughing the field is manured and ploughed again twice." Vol. III. page 143.

In preparing the dry land for raggy (or *Cynosurus Coracanus*,) which is called in India, a dry grain, because it is cultivated on dry land, Dr. Buchanan gives the following account. "The ploughing commences whenever the first occasional showers in spring have softened the soil sufficiently to receive the plough From that period to the 5th of June the field is ploughed from four to six times, according as it may be found clean or foul. The dung is then given and ploughed into the soil." Vol. I. page 100.

"For *Navara* rice the field is ploughed ten times." Vol. II. page 374.

These notices will be sufficient to show, that in the culture of wet as well as dry land, there is a repetition of ploughings, which may well be imagined to be absolutely necessary when the construction of the Indian plough is considered. Some idea may be formed of them by the representations in Plate IV. These are copied from Dr. Buchanan's work, and are reduced to the scale of the implements in the Plates I. and II. for the purpose of exhibiting their relative dimensions compared with those of an English plough, as in fig. 3, and of the several implements used in my new husbandry.

Dr. Buchanan has said, the Indian ploughs have neither *coulter* nor mould-board. This appears to be rather incorrect, because the points of all those ploughs have much more the resemblance of coulters than of *shares*; not only from their vertical position, or the angle which they form with the beam. It is obvious, however, that the intent of those implements is to break and crumble the soil without turning it. This is precisely the effect produced by scarifiers or harrows, which I conceive to be all that is required: and this effect can certainly be much more easily produced, than when, to the breaking and crumbling, are superadded, the heavy *operations* of *ploughing deep* and *turning*. If, however, the latter operation was actually necessary (and I knew no reason why it should be so considered,) the implement 5, in Plate II. will perform it as effectually as any mould-board plough, (*after the pulverization of the soil is completed*,) at the rate of three acres per day, with only one horse.

I cannot conclude these remarks without adding, that notwithstanding the seemingly imperfect construction of Indian ploughs, the farmers manage to produce excellent crops of all sorts of grain. Their rice or paddy, yields from 33.3 to 66.6 bushels per acre, and their wheat, called *Javi Godi* (or *Triticum Monoccum*) from 22.2 to 26 6 bushels per acre.

During my surveys on the Peninsula of India, extending from Cape Comorin to the Godavery river, and as far westward as Seringapatam, I had opportunities of observing many thousand acres of crops as perfectly clean, and as free from weeds and *bushes*, as those in the best cultivated counties in England. The *bushes* alluded to in the first of the preceding extracts from Dr. Buchanan's work, are (I am credibly informed,) left *untouched* by the plough, from a superstitious veneration to a practice handed down through many ages. They are not occasioned by the imperfetcion of Indian ploughs, which, I am disposed to think, have more perfection than travellers have allowed them. We ought to judge by the *effects*, and not by the *appearance*, of those rude, and apparently imperfect implements.

If we apply the principles of petty operations to any stiff land—by taking that depth of furrow which can easily be ploughed with *two* horses, and repeat the operation, (or plough the land a second time) we shall arrive at the end proposed, that is, the same depth of ploughing, with absolutely less exertion of animal strength, than if we were to plough the *same* depth with *four* horses at one operation.

This may be illustrated, by supposing the resistances to the plough to be in proportion to the squares of the depths of the land. If so, and we are to plough, at once, with four horses, six inches deep, the resistance at that depth would be $6 \times 6 = 36$: but, if with the same four horses, using two at a time, we plough the same depth of six inches at two operations, taking only three inches at each, then the square of the first depth is nine, and the square of the second, nine—making 18—for the total resistance, or the power expended by the two horses in ploughing six inches deep at two operations.

Moreover, if we take the depth of only three inches instead of six, it is evident the slags, by being only half the thickness, must be in a much better state of preparation for the harrows and roller; and their effect upon them will be proportionally greater, in reducing them to the requisite degree of fineness.

But in the methods I have adopted for attaining a minute division of the particles of soil, the plough is but little used, and sometimes not at all. The chief use to which it is applied is in baulk-ploughing, with two horses, at the rate of three acres per day with one plough—furrows, 27 inches apart, and about four inches deep, are opened all over the field, which prepare them for the scarifiers.* These, by twice passing across those furrows, loosen all the stubble and roots of weeds, which are afterwards collected with a small portion of the soil, by a rake six feet in length (Fig. 2, Plate 1,) drawn by two horses. At favourable opportunities, when the weather is dry, the whole of this rubbish is placed in heaps, 33 feet, or 11 paces asunder, and the stubble being laid on the windward side and kindled, the flame acts with nearly the force of a blow-pipe, and speedily reduces the whole to ashes. By arranging the heaps at the distance of two rods, it becomes easy to compute the quantity of ashes thus obtained per acre.† The ashes are spread as soon as possible, and the land is again twice scarified (and sometimes once harrowed afterwards,) which completes the pulverization, and renders the soil in a fine condition for receiving the seed.

This mode of preparing the land, (as will presently be shown,) does not require more than *one fourth* of the animal labour which is usually applied by the neighbouring farmers in working their summer fallows, and completing their seed time.

Their practice is to give four ploughings to the fallows; and it is supposed they can accomplish an acre in a day. Now, as each ploughing is performed with four horses, it is evident that the power of 16 horses, for one day, is expended in these four ploughings of each acre; and, if we rate the harrowings and rollings, &c. at four horses, the total power expended is that of 20 horses for one day, in completing and seeding an acre ofwheat!

By the method I have hinted at, I have often proved, while superintending the operations in

* Blackheath. † Dr. Johnson.

* I have lately ascertained that baulk ploughing is unnecessary. The scarifiers are, in most cases, sufficient for pulverizing the soil This will be explained

† This arrangement gives one heap to each four square rods —or to the f rtieth part of an acre. If the average quantity of ashes produced from one heap be four bushels, this would be 160 bushels per acre.

the field, that a more perfect pulverization of each acre is obtained, with the power of only four and a half horses for one day. This includes one ploughing, with three horses, and all the subsequent operations of scarifying, harrowing, marking, and warping, drilling, and deepening the drain furrows—besides, giving two horse-hoeings between the rows during the growth of the crop.

[TO BE CONTINUED.]

THE PLOUGH BOY.

ALBANY : SATURDAY, MARCH 24, 1821.

Every lover of his country must rejoice in the progress of science ; for where ignorance prevails, there is no chance for law and liberty to flourish. Institutions, therefore, which have for their object, the advancement of science, in any of its various branches, deserve the support and countenance of every enlightened and virtuous citizen. Among other evidences of a growing disposition among us to promote so good a cause, we state that a scientific institution has recently been instituted at Catskill, under the title of "The Catskill Lyceum of Natural History." From the intelligence and the public spirit of the gentlemen who form this association, we augur the happiest results. The country in the vicinity of Catskill offers a field of research and experiment, which, we doubt not, will be duly improved by this institution—a field upon which we had intended to offer some remarks, long since, in relation to its importance, not only as a source of natural history, but of agricultural improvement ; and we are happy to believe that a task, of which we had contemplated the performance, will now fall into abler hands.

Messrs. CASSIDY, of this city, have purchased from Mr. JOHN GARDNER, of Hancock, Mass. a *yoke of oxen*, for which they gave *one hundred pounds*. These cattle are admitted, by the best judges, to be superior to any ever before brought to this city ; their beef will be exhibited for sale on Monday next, at the Fly Market.

FOR THE PLOUGH BOY.

On Orcharding.

As considerable has already been published on this subject, in the first Volume of the Plough Boy, I shall not here indulge in any repetition of what has been said, but merely enter into particulars in regard to the most important branch of orcharding, to wit : the selection of fruit trees for the purpose.

In making selections, the most essential point is to make diligent and extensive search in orchards not more than twenty or thirty years old, for such trees as bear *yearly*, and *plentifully* of such fruit as is best calculated for the purposes for which apples are most wanted ; which principally comprises, early and late sorts, of the first flavor, for supplying the markets in our principal towns, as well as for family use ; those for making cider, and those for winter use. In searching for the most valuable trees, for the above purposes, confine yourself to young orchards of trees which have been raised from *the seeds*, for if you get among grafted trees you may stumble on sorts whose natural term of life is nearly spent. The duration of grafted fruit trees, it should be remembered, is pretty much regulated by the life of the parent stock ; they are like the new noses, mentioned in Hudibras, which a learned Doctor could make for his patients, "from the brawny part of Porter's bum"; these answered the purpose as long as the Porter lived, but when he died the noses all dropped off. Mention is made in the letters of *Esprietta* of a famous Pear tree in England, called the *Tecquton squash*, from whose fruit perry had been made that had frequently been sold in London for Champaigne ; that from this tree a numerous progeny had in time been reared by grafting ; but that when the old tree at length went to decay, all the younger ones reared from it, of whatever age, were quickly found in the same condition. Let the cultivator therefore beware of rearing his young orchard from any of the old sorts of grafted fruit, however valuable such may have been in their day.

There is indeed no difficulty, if search be made for the purpose, of finding young apple trees, raised from the seeds, that, considering the *quantity* they bear *yearly*, and the *quality* of the fruit, are worth more than any trees of the most famous grafted fruit that is at present to be found. I have seldom seen grafted trees of any of the most famous sorts, but such as were alternate bearers, and of but middling product. Probably this may be owing to the scions being grafted on worthless stocks, for such are three fifths of apple trees raised from seeds. When trees are raised in this way, you will perhaps scarcely find one out of five hundred different sorts, that is really excellent. If it should be found, by experiment, that the disposition of the young stock, which we will suppose tends to render it an alternate bearer of a small product, does actually, to a greater or less extent, control the future disposition of the scion that is grafted into it, then the means of preventing this degeneracy in the future tree, grown from the scion, ought to be resorted to. One method of effecting this is by resorting to the Chinese method of raising trees as described in a former essay on orcharding, to be found in the first Volume of the Plough Boy. Another is to take pieces, cut about six or eight inches in length, of the small roots of the tree from whence you take the scions ; graft them into the upper ends of the pieces of the roots, and set them well into the nursery immediately. My impression is, however, that the habit and disposition of the scion, being already fixed, according to those of the parent tree, must prevail over the young stock on which it is grafted. Accurate experiments can alone determine this point.

In order now to illustrate, by matter of fact, the immense difference between the value of an orchard, of the best selected fruit, and one of trees raised from the seeds, I will state a case within my own observation. When formerly living with my father, his orchard consisted of about 150 trees raised from the seeds. During the bearing years he usually made about 50 barrels of cider—the years following about a third of this quantity. There was one tree, however, among this number, of uncommon excellence.—It bore yearly, and very plentifully of a large juicy apple, which for making cider was no doubt as good, at least, as apples are in general. The tree was then about 40 years old. The product of it was measured, one fall, and was found to be a little more than 24 bushels, or enough for three barrels of cider. This was after many had fallen early from the tree, and rotted, and after a considerable proportion had been applied to family uses, for which the fruit was preferred. Now, had the orchard been all of this sort of apple tree, the yearly product of cider might have been 450 barrels, or nine times the quantity of apples contained in the bearing years. Is there any thing extravagant then in the assertion, I made in the last number of the *Plough Boy*, that it is a matter of no difficulty to rear an orchard of such selected fruit as shall afford six times the clear profit that is obtained from orchards reared in the usual way from the seeds of the apple ?

It was my intention to have spoken of the importance of the more extensive culture of the pear, and of the quince tree, as affording great profits in orcharding ; but these, for want of time at present, must be deferred for another opportunity.

J. N.

A Sermon will be preached on the next Sabbath ensuing, at the South Dutch Church, and a collection taken for the benefit of the Albany Religious Tract Society.

Foreign Agricultural and Scientific Notices.

British Agricultural Report, for Jan. 1, 1821.—A considerable quantity of wheat was put into the ground during the first ten days of the last month, so that much of the wheat seed business has not been deferred to spring as had been expected. The appearance, both of the forward and latter sown wheats, also of rape, rye, and other cattle crops is fine and luxuriant. Drill sowing or row culture, after so many years of deliberation, is greatly on the increase, the motive assigned, ss clearing the land of weeds. From the generally favourable state of the weather and plenty of hands, country labour is very forward, and the lands are well fallowed for the spring crops, by the plough ; an hon. General's plan of substituting the scarifier for the plough, not having yet obtained the sanction of farming opinion. Every article of produce has decreased in price since our last, and with respect to fruit, poultry, eggs, game, butter, cheese, bacon, pork pigs, &c we have had as much assistance from France and Ireland, as though we had needed it, demonstrating general superabundance Live stock of all kinds, at far other reduced prices.

The pastures now no longer afford any keep, and turnips, except partially, are a scanty crop ; in consequence the surplus of barley, oats and pulse, will be converted into firm, sound, and wholesome beef and mutton, a character which cannot fairly be given to fashionable oilcake meat, with its loose, inelastic, unsavory flesh and dull-coloured grease tub fat. Fodder is an universal plenty, rendering the winter-home of the cattle quite comfortable. An endemic disease has affected swine in some parts of the midland counties. Our reports from even Kent, Essex, and the most productive and

opulent counties, to use the language of former days, are truly deplorable. They express the utmsst apprehension as to their ability of supporting their labouring poor through the winter. The associated farmers are, it seems, about to renew their application to the legislature for relief; now some, we do not pronounce the most judicious of the petitioners, have not scrupled to avow their expectation that Parliament ought to make enactments on the affair of import, tantamount to raising the price of corn to the height, which might be, in their estimation, a saving standard. Ireland sends us the report that she is labouring under war-rents and taxes, with feudal suit and service, and selling her produce at the lowest peace prices.

Mangel Wurzel, Court-a-Wick Pippen Cider, Pyroligeneous Acid. At a meeting of the Bath and West of England Society for the encouragement of Agriculture, Arts, Manufactures and Commere, held in December last, the following communications were made:

1st. An Account of Mr. Havilward's experiments in *Spade Husbandry*, and his *Court-a Wick Pippen*, from which the following are extracts:—

"The Mangel Wurzel, Guernsey parsnips, long carrots, and short carrots, are of field, not garden growth; and the immense size of the mangel wurzel arises from the devastation of the grub on their neighbours. On three acres of old arable, much out of condition, I began the work of cleansing and manuring with vetches on oat stubble, which were cut for soiling, succeeded immediately by cattle cabbage, dunged after the rate of 80 cart loads per acre. On this foundation I have grown parsnips and mangel wurzel in drills at wide intervals (so as to hoe the crops with ease,) after the effective digging with the spade, or if I had more manure to lay on, a second digging, in order to vary it. The carrot crop follows these, and is manured with coal ashes and perhaps a sprinklit of soot, on the surface of the ground after the plant appears. The husbandry necessary after seeding the land is two hoeings by hand, and regular thinning. My mangel wurzel crop amounts to twenty tons of roots, and of leaves enough, in addition to a necessary allowance of hay, about one cwt per week, to feed a heifer more than a year. The short carrots amount to the rate of thirty-two tons (nearly) per acre, 19 1 2 perches having given 73 cwts. The parsnip crop, unfortunately, was judged of from the part first dug (for sale to a farmer for seeding cattle, at 2s. 6d. per cwt. or 50s. per ton; he bought two tons,) and did not amount to 12 tons per acre; the other part from the Guernsey seed was much better, but I do not think it to have exceeded 16 tons per acre. In calculating the value of carrots and parsnip crops by the gardener's prices, a sum appears which astonishes. I have sold more than 23 guineas worth, and do not think more than one-third of the produce of one 1 1-2 acre to have passed from my hand; that is, I have sold the produce of half an acre. At home, I sell either carrots or parsnips at 50s. the ton, but prefer retaining the parsnips of the two, from the idea of their more nutritive quality. I give you below the time of sowing the crops, and the distances of the drills.

	Sowing.	Intervals.	ft.	in.
Mangel-Wurzel,	April or early in May,	2 thinned in rows.	1	6
Parsnips	Early in March	1 3 in rows	1	0
Carrots	March	Broadcast.		

The Mangel Wurzel must be secured from the frost, and should be off the land by the end of November."

"I am induced to bring the Court-a-Wick Pippin Cider forward, from the peculiar flavour it has invariably possessed, from the excellence of the apple for the table (some of which I also present) and the generally healthy condition, free growth, and productiveness of the tree. I may claim attention to this apple as recommended by the late Mr Billingsley, I believe, in his survey of the county. It is of Somersetshire origin, and appears to be the most worthy successor to the old golden pippin. The process of making the cider, under which the trouble of racking is avoided, is as follows:—Collect the fruit when well ripened, either as it falls without much violence in separating from the tree; keep it in heaps, either in the open air or under cover, till quite mellow, or even tending to decay; strain the liquor from the press, set it in an open vessel to ferment, and when white cliffs or fissures may be discovered on the head (formed on it as on beer under similar circumstances.) skim off the thick part on the surface, and remove the liquor to the cask with as little motion, and in as clear a state as possible. Let the cask stand in a cool situation, perhaps above ground may be the best, and having filled it to within a few inches of the head, but not to the utmost, stop it close immediately; after some time has elapsed, strew fine sand on the head, in order to prevent all access of air to the liquor, and in the spring remove the cask to an underground cellar, or bottle off its contents. The object I have in view by requesting the attention of the Society to the subject of cider is, that a premium may be given, wherever its funds will admit of it, for liquor made of any one seedling variety, as the means of obtaining a succession to the old and almost extinct choice kinds of fruit for the press."

2d. Statement from Dr. Wilkenson, on the properties of the *Pyroligenous Acid*, in which are the following observations:—

"This acid is very easily and cheaply prepared: the first distilled product of the wood, in that state denominated black acid, answers the best when separated by rest from its tar and naptha. More than 70 gallons of acid, sufficiently strong, are procured from a ton of wood; this quantity of wood is readily procured at 10s. per ton, delivered at the works. Supposing the expenses of the manufacture to be equal to the purchase of the wood—and which is making a very ample allowance, as the residual charcoal is equal in value to the wood employed—the value of 70 gallons of acid will not exceed 20s. or about 3 1 4d. per gallon; a gallon is quite sufficient for 2 1 2 cwt. of pork, beef, and most animal substances, with the addition of a comparatively small portion of salt, not only affording a considerable saving in this article, but also materially contributing to the increase of flavour and nutritive quality. Hams or beef cured this way require no previous soaking in water to being boiled, and when boiled swell in size and are extremely succulent.

"The ham sent for the Society's examination has been cured in the usual way recommended for Westphalia hams, the acid employed, instead of being smoked, two table spoonfuls of the acid being added to the pickle; and when the ham is to be removed from the pickle, it must be well washed in cold spring water and dried, and then some of the acid applied over it by means of a brush, and this repeated two or three times at about a week's interval.

"Herrings Mr. S. cures with very little salt; being well dried as early after being caught as can be effected they are then dipped into a vat of the acid, and when dry, the same process repeated a few times, suspending them like the manufacture of candles—Mr. S. entertains no doubt, from the result of his experiments with herrings, that the same process would answer for other kinds of fish, as salmon, cod, &c.; and hence, when cooked, may be salted according to each individual's taste. The red colour, in dried salmon and herrings, has been generally attributed to nitre; very frequently tobacco, dissolved in a fluid not very agreeable [urine] is made use of in Holland.

"I presume this acid would be found very useful on board any vessel fitted out for long voyages: it appears from calculations on a small scale, that one hogshead of this acid would suffice to cure six tons of fish, in such a manner as to retain most of their nutritious quality; and cured on board when opportunities occurred of procuring them, independent of being an excellent substitute for common vinegar in many culinary purposes on board."

A fine ox was recently slaughtered at Exeter; length from rump to horn 9 feet 2 inches, girth 8 feet 6 inches; weighed, when living, 2330 lbs: weight of rough tallow, 143 lb. This animal was of the North Devon breed.

For want of tables of the apparent distances of the moon and the planets, being published in the Almanacks, navigators have not yet been able to avail themselves of the planets, in their *Lunar Observations*; but this defect the Danish government is about to supply, by the Almanack for 1822, which is to appear in June or July next, and contain the planets' distances from the moon every three hours at Copenhagen, calculated under the direction of M. SCHUMACKER, Professor of Astronomy.

The spontaneous inflammation of hay has been known for many centuries; by its means, houses, barns, &c. have been often reduced to ashes. When the hay is laid up damp, the inflammation often happens; for the fermentation is then very great. This accident very seldom occurs to the first hay, (according to the observations of Mr. Romaine) but is much more common to the second; and if, by inattention, a piece of iron should be left in a stack is almost a certain consequence.

The two academicians, Doctors Spix and Martius, have arrived at Munich, from their voyage to Brazil. They have brought two children belonging to the savage tribes on the river of the Amazons. Their extensive collections in natural history are expected at Hamburg.

A new and astonishing female singer, is commanding the attention and admiration of the British public. A Miss Wilson had been engaged to sing at the Drury Lane Theatre 40 nights for 800 guineas. She had performed three evenings, and surpassed expectation—one of the evenings, it is said there was little less than 700 pounds in the house.

Sea salt in Vesuvius.—**M. Gimbernaut has ob**served that within a few days after the late eruption from Mount Vesuvius, the crater was covered with crystals of sea-salt.

The importation of all spirituous liquors is strictly prohibited in Hayti—under a confiscation and a heavy fine.

Progress of Freedom.—**An order has been sent** out from Spain, under the signature of the King, to allow the importation of all books, without distinction, into the Spanish provinces. We are told that many respectable individuals, both in La Guayra and Caraccas, who formerly appeareed to be possessed of such books only as were tolerated by the Inquisition, immediately on the publication of the above order, exhibited splendid and valuable libraries.

The good effects of a newly discovered remedy, the *chimininta*, or *unnona febrifuga* in fevers, and especially intermittent fevers, has been fully confirmed by the experiments of the physicians appointed by the Royal Medical Society at Madrid.

A new and improved observatory is to be erected for the University of Cambridge, in a field commanding an unobstructed view. The present subscription for its erection exceeds 11,000 pounds; the instruments already ordered, amount to 2,300 pounds.

Mr. Banks, who is an admirable connoisseur in works of art, has brought with him from the continent a very fine head by VELASQUIS, a *Nymph* (allegorical) by TITIAN, and *The Judgment of Solomon*, by GIORGIONE, to enrich his already choice collection, by the first masters.

More than a million of sixpenny and shilling pamphlets, treating of the Queen's case, were sold within three months, and of these Mr. Hone sold above half a million of his Queen's Matrimonial Ladder, his Non Mi Ricordo, &c.

It is said that one night's performance will be given in every theatre in England, Scotland, and Ireland, the profits of which are to be appropriated to the fund for erecting the national monument to the memory of *Shakspeare*, at Stratford on Avon.

On board the Discovery Ships, near the stove, was grown a considerable quantity of mustard and cress, which was useful on account of its antiscorbutic qualities. In consequence of the privation of light during the winter, this vegetable, as it grew, was perfectly white, but when the summer returned, and light was admitted, it immediately bent in the direction of the light, and the tips became green, which colour gradually spread to the stalks.

Weekly Summary.

The Legislature of Pennsylvania propose establishing a loan office, for the accommodation of individuals embarrassed, as to the payment of debts contracted previous to passing the law.

A deputy post-master in Ohio has been arrested for purloining money from letters, and committed for trial; he has confessed the crime.

The first number of a weekly paper in the German language, will be published at Baltimore on the 7th inst.

There is now 1241 students in the five principal northern colleges of the United States.

The deposits in the saving bank at New-York, from 31st Dec. to 1st Jan. 1820, amounted to $342,085 23.

Mr. Zachariah Spalding, of Brooklyn, Conn. improves 43 acres of land; he keeps six cows, three yearlings, and 13 sheep. From his six cows he has made the season past 2000 weight of cheese, making an average of 333 pounds to each cow. He has also made a considerable quantity of butter and skim cheese, from the same cows. He has a number of hogs fatting which will make 2400 weight of pork. All this is done from the produce of his 43 acres, and he will besides have grain sufficient for the use of his family the ensuing year. Mr. Spalding is what we commonly call an old fashioned farmer; and he does not resort to the expensive mode of purchasing manure and plaster, that many farmers do who obtain great crops. His land is by no means first rate, and the labour does not exceed that of one man who could be hired for 100 dollars a year.

A letter, dated Arkansas, Dec. 29th, states that the Osages and Cherokees have just commenced hostilities.—The Osages, a short time since, made an attack on a party of Cherokee hunters, killed two, wounded some others, and took all their horses, &c. This took place at the Oporto, and not far from the garrison.

A person of the name of White was lately tried at Baltimore, and sentenced to pay a fine of $50, and suffer one year's imprisonment, for disturbing a Jew who was preaching Christianity.

During the performance at Boston of the celebrated Mr. Kean, the tickets for admission to the Theatre, were sold by public auction, and the surplus, (amounting to $2,999 75,) after paying the regular price of admission, was applied to charitable purposes.

A horse at Hounslow, was lately backed for fifty guineas, to trot one mile in three minutes and ten seconds, which he won cleverly, having three seconds to spare.

Severe weather in France.—**At Paris, on the** 28th of December, the thermometer was two degrees *below* zero.

Mr. Huddy, the postmaster of Lismore, travelled, for a wager, from that town to Fermoy, in a Dungarvon oyster-tub, drawn by a pig, a badger, two cats, a goose and a hedgehog. The eccentric sportsman wore a large red nightcap, and merely used a large sow-gelder's horn and a pig-driver's whip. Mr. Huddy is in his 97th year.

The public revenue of Great-Britain, for the quarter ending 5th January, had fallen short the sum of 309,329 pounds sterling

At the Old Bailey sessions, in London, there was 2,258 persons convicted of various crimes, during the year 1820, 40 of whom were executed.

The great pedestrian match completed.—Mr. Arnot, a Somersetshire yeoman, it has been stated, started on the north road on Wednesday last, to do 264 miles in four days, which is far beyond the compass of the powers of a horse.—His first stage was to Dorchester, in Oxfordshire, and from thence he took a north-eastward route to Nottingham; from thence to Doncaster, and back to Lincolnshire, where he completed the extraordinary undertaking, at eleven o'clock on Saturday night, although the weather was much against him. The first day he completed 72 miles in nineteen hours. Second day 69 miles in twenty hours. Third day 68 miles in twenty hours. Fourth day 55 miles in twenty one hours Making in all 264 miles. The pedestrian was much distressed on the third day, but he took much time to do the last day's work. His blistered feet were relieved by worsted being drawn through the blisters, which was left in.

The inhabitants of Dorset-street, and its neigh bourhood, yesterday preferred a Bill of Indictment against the City of London Gas Company, for a nuisance; and the same was found by the Grand Jury.

Naples, Dec. 21.—**Letters from Milan confirm** the intelligence that the typhus fever prevails amongst the Austrian troops assembled in the Lombarde-Venetian kingdom. At the departure of the last courier the number attacked amounted to 16 000. The cavalry have sustained a loss of 1500 horses, which is attributed to want of provender.

It appears by a letter, dated Jeremie, Jan. 26, that the fever raged with great fatality in Port au Prince, particularly among Americans.

It was reported in St. Thomas on the 17th ult. that "Surrinam had been burnt."

Another insurrection of a serious nature has taken place in Mexico, under the direction of a descendant of Montezuma. All tends to independence and a representative system.

The Pheasant, capt. Kelly, lately captured on the coast of Africa a small Portuguese schooner, with 71 slaves on board, 34 of whom were women, crowded into a space 8 feet 4 inches long, 4 feet 8 inches broad, and 2 feet 7 inches high. They were all shackled together with irons, and when released could hardly stand on their legs from cramp and starvation.

Spain.—**The Political Chief sent to the Patri-** otic Society, which assembles daily at the Fontana d'Oro, to notify that it must disperse, on account of not having obtained a license from him. This caused great confusion, and the Club sent a deputation to the Political Chief to arrange the matter: the result is not known. They also passed an address to the king to dismiss his ministers, citing the example of the London Common Council.

Loss of the Abeona Transport.—**The Abeona** transport, of 328 tons, under the charge of Lieut. Mudge, of the royal navy, sailed from Greennock, in October last, with settlers for the Cape of Good Hope. On the 25th Nov. about noon, in lat. 4 deg. North, and Long. 25 deg. West, the vessel caught fire, and was burnt. Out of a crew of 21 persons, and 140 emigrants, men, women and children, making a total of 161 persons, only 49 are saved. These are all safely landed at Lisbon, and have subsequently sailed for Greenock. The fire broke out in the after store-room, whilst the chief mate was occupied in some necessary business there; and such was the progress of the flames, that only three small boats could be got overboard, before the flames consumed the tackle, &c. necessary for hoisting out the long boat. In these three small boats 49 persons were received on board, with so scanty a supply of provisions, that the consequences must have been almost equally dreadful with the fate of those left on board, had not a Portuguese ship fallen in with them at day-light next morning

The government duties in England, upon a number of articles in constant use, are more than *double* the original cost, as appears from the following table:

	Original value without the duty.	Produce of the duty.
Spirits (British)	L.1,215,062 0 0	L.3,037,655
Ditto (foreign)	469,995 0 0	2,349,975
Tea	3,085,764 0 0	3,085,764
Tobacco and snuff	829,625 6 8	2,488,876
Wine	629,667 6 8	944,501
Malt L 4,782,073 / Hops 394,425 / Beer 2,543,713	3,860,105 10 0	7,720,211
Salt	191,232 15 0	1,529,862
	L.10,281,451 18 4	L.21,156,344

London Corn Exchange, Jan. 17.—**We have** had but few arrivals since Monday, and although the quantity of wheat at market is but small, the sales were heavy, except for prime samples, which support Monday's prices; but there was but little or no demand for inferior descriptions. Fine barley being scarce, what few samples appeared this morning were readily disposed of on as good terms as on Monday. Oats are rather dearer, in consequence of the scantiness of the supply.—In Beans and Peas no alteration in prices, but the sale of each was exceedingly heavy.

Preservation of Eggs.—**The Edinburgh Philo-** sophical Journal recommends the following method for the preservation of eggs either for zoological or economical purposes Varnish them with gum arabic, and then imbed them in pounded charcoal. The gum arabic is preferable to varnish, because it is readily removed by washing in water; and the charcoal is essential for maintaining a uniformity of temperature round the eggs, in transporting them through different climates.

Paris, Jan. 3.—**The printer and publisher of** a pamphlet, which has considerably ruffled the temper of the Ultras, was tried here last week, and condemned to three months imprisonment, and a penalty of 1000 francs. This was not altogether very gallant, as the sufferer is a female and a widow. The author failed to appear, and was sentenced to five years imprisonment, and a fine of 6000 francs. Every copy of the work possible to come at has been seized by the police. It is entitled Letters of M. Gregoire, Ex-bishop of Blois, preceded and followed by some remarks upon M. Guizot's work upon the French Government, by B. Laroche. The author is a very young man, and a very enthusiastic admirer of M. Gregoire.

The following Receipt for Soup, used at Bethel Hospital, will perhaps be acceptable to charitable institutions and benevolent individuals:—Take the liquor of meat boiled the day before, with the bones of leg and shin of beef; add to the liquor as much water as will make it 130 quarts, and also the meat of 10 stone of leg and shin of beef, and 2 ox heads, all cut in pieces; add 2 bunches of carrots, 4 bunches of turnips, 2 bunches of leeks, half a peck of onions, 1 bunch of celery, half a pound of pepper, and some salt. To be boiled for six hours. Either oatmeal or barley may be put in to thicken it, if thought necessary. This soup may be used at any gentleman's table.

ESTIMATED COST.

10 stone of leg and shin of beef	L.0 11 8
2 ox heads	0 4 0
2 bunches of carrots	0 0 6
4 bunches of turnips	0 0 8
2 bunches of leeks	0 0 4
Half peck of onions	0 0 8
Celery	0 0 6
Half pound of pepper	0 1 8
	L.1 0 0

LIST OF LETTERS,

Remaining in the Post-Office, Albany, 1st March, 1821.

☞ Persons calling for the following Letters, will please to mention that they are advertised.

A.—Major Gen. Armstrong, Nathaniel Ambrose, Samuel Alger, Robert Anderson, William Avery, 2, Rev. B. Ambler, Peter Althouse, Nicholas Allyn, Angeline Ashly.

B.—A. Benson, J. Beatte, Wm. Brigham, Samuel R Bates, David Bockes, Samuel Bates, John Buxton, Thomas Brown, Silas Booth, Almond Bostwick, Hastings R Bender, Samuel Brooks, Charles Barker, Ashly C. Baker, Wm. Baldwin, Robert Bromley, James Brown, E. F. Backus, David R. Brown, Thomas A. Bridgen, Bordon Blaker, Thomas Brown, George Bloom, Joshuah Badgely, Thomas Barret, Medad Beach, James Brannon, Jonathan Burr, John Burns, Mrs. Roxana Bates, 2, Miss Rebecca Bussing, Fanny Booth, Jane Barrows.

C.—Paul Clark, Augustus Cuyler, 2, Wm. Cammel, Robert Cain, Joseph Chadsey, Joseph Chancey, Henry Case, Philemon S. Cooly, Enoch Colby, Elisha Condit, Philip Coper, Winant Crannel, Hezekiah S. Calf, Samuel Chadwick, Oliver Capron, Paul Cushman, Reuben Cole, David Carty, Samuel Cuthburt, El. Clark, Mrs. Cynthia Cornell, Mrs. Clarissa Capron, Miss Sarah Ann Churchill, Miss Mary G. Campbell, Miss Catharine S. Crooker.

D.—John F. Doty, Adrian Day, & Co. Abraham Drummond, James Demarest, Wm. Dearmor, Thomas Doyle Israel Day Richard Decharms, Solomon Davis, Wm. Davason, Peter Donnelly, Joseph Dalzell, E. Dorchester, to B C D Leonard M Davis, Robert Daniels, John Downs, Maurice Davis, Mrs Morriah Dedereck, Mrs. Sally Durand, Mrs. Matilda M. Davis, Miss Sophia Dyer, Miss Davis, Miss Day.

E.—James Eaton, Miss Mary Eldred.

F.—George H. Feetar, John C. French, Abel French, Persis Frisbey, Eli Fitch, Josiah French, Ebenezer Foote.

G.—Barent Germond, James Geddes, Enoch Gale, Fonda Gruesbeck, Nathaniel Green, Thomas Griggs, Jacob Gerhard, Benjamin Goodrich, John Gilbert, Mrs. Hannah Green, Miss Jane Gordon, 2.

H.—Moses Hayden, 8, Stephen Herriman, 2, John Herkimer, Rosamund Huntoon, David Hosford, 2, Thomas Hodge, Jacob Haight, H. Henlett, John E. Hirman, Alfred Hovey, Wm Hagadorn, Wm. Healy, Stephen Hungerford, Miss Sally Harwell, Rebecca Hand.

J.—E. Jones, & Co. John Johnson, Capt. J. L. Judson, Elisha Jenkins, Henry Jackson.

K.—Hon. James Kent, Moss Kent, Levi Knight, William King, Henry Kease, John Klapp, George Kilbourn, Edward Kirkpatrick, Robert Kearney, Robert S. Kinnicut.

L.—Harry Lathrop, William Leavenworth, Bernhd. Loser, James Landen, Harmaunus Lansing 3, Jacob Lansing 2, Henry Lagrange, Lansing & Staats, Matthew Lake, The Lieutenant Governor, Noah Lozer, Jeremiah Lockwood, John Lottridge, John Liswall, Miss Betsey Lisk, Miss Amy Lewis, Miss Catharine Lord, Miss Ruth Lobdell, Miss Frances Lewis, Mrs. Edy Loker.

M.—Wm. M'Dougall, James Moore, Abner Merriam, Wm. W. Mansall. Edward Merrittt Benjamin M'Genness, Philip Miller, Charles A. L'Mercein, Nancy M'Gregor, Donald M'Donald, William M'Clare, Fonda Morse, William Mamin, William M'Kown, Capt. James Maher, Robert M'Connell, Willis Merritt, Mrs Margaret T. Mills, Miss Julia M'Grath, Mary Mc Carty, Mrs. Merritt

N.—Ichabod Nye, John Norton, Charles Nichols.

O.—James Oliver, Miss Philina Otis.

P.—Ananias Platt, Joseph Parker, Betts Patterson, Jonas Platt, 4, Ruel Phillips, Calvin Pepper, Peter Pine, Stephen Paddock, Peter B. Porter, Jacob Piercey, John H. Peasley, Joseph Pierce, Chauncey S Payn, Chester Phelps, Ferris Pell, Joseph T. Peirce, Thomas Phaenix.

Q.—Abraham Quackenbush.

R.—Thomas W. Rosell, John Bowdon, Joseph L. Richardson, Rufus A. Reed, S. Puger, David Russell, Benjamin Robinson, James Rodgers, Alexander Richards, Capt. Jed. Rogers, Wm. M. Ryan, A. Ross, Wm Rodrick, Sally Rivington.

S.—Joel Squier, Samuel Stephenson, Wm. Spafford, Christian Sackrider, 2, Livi Sillman, John Shatswell, Barent G. Staats, J. M. Skinner, Jacob Shooke, 2, Rich'd L. Smith, 2, Charles Smith, D. B. Stackholm, 2, Wm. Seymour, Messrs. Solomon Smith, & Co. Messers Spencer & Pomeroy, Harmanus P Schuyler, Joseph Smith, Jos. G. Spencer, Charles Stanford, Walter H. Silver, Francis Sim, R. C. Skinner, William Sill, George Sherman, James Sealy, Charles Spalding, S. Sherwood, Gen. Philetus Swift, 5, Mrs. Susan Shaw, Miss Rachel Stuart.

T.—John Taylor, 2, Joseph Trembley, Henry Turner, Samuel Stevens, John C. Tillotson, Abraham Ten Eyck, Dr. Torbett, James Trice, 2, Peter S. Townsend, Calvin Thompson, Charles D Townsend.

V.—John Van Zandt, Teunis Van Vechten, Cornelius Van Antwerp, Joseph Vannino, 3, John Vandeberg Joseph Vandazen.

W.—Robbeson Wilkinson, Giles K. Winey, Jomes Waine, Ananias Wells 2, Hiram S. Woodruff, John M. Wood, J. W. Weble, Joseph Wardell, George Wilson, Peter Waring, N. Williams, Gen. James Wilkinson, Samuel Wood, Richard Waring, Cornelius Waldron, Joseph Wilson, 2, Russel Whiting, Nathaniel Wilson, John Watley 2, John Walker, Samuel Ward, Elemuel Wight, Canvass White 2, George R Winants, James Williamson, Mrs. Jane Williams, Mrs. Maria Williams, Miss Elizabeth Weegs, 2, Miss Loretta Warner, Miss Mary Ann Wendell.

S. SOUTHWICK, P. M.

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